



Coffee: A Therapeutic Beverage

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General Note



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ABSTRACT

Coffee is thought to have originated in the Ethiopian province of Kaffa and brought out of Africa and the Arab world by the Dutch. It is now consumed worldwide and its popularity is growing. Consumption has increased to more than 2 percent annually in recent years according to the International Coffee Organization. Although commonly consumed for its stimulant effect and social benefits, coffee is now gaining popularity as a disease preventing beverage. The prophylactic effect of drinking coffee on the development of cardiovascular diseases and diabetes mellitus is compelling and irrefutable. Most health benefits appear to be related to imbibing about 4 cups a day. This article briefly summarizes the evidence based benefits associated with coffee drinking.

Keywords: caffeine, cardiovascular disease, diabetes mellitus, hepatitis, cancer, Parkinson's disease, depression

1. INTRODUCTION

Coffee (1,3,7-trimethylxanthine) is the most frequently ingested beverage worldwide, after water. It is estimated that in 2008 over 2.5 billion cups (30 mL/cup) of coffee are consumed per day in the world. Its consumption is also consistently on the rise (ICO, 2013). It is commonly consumed as boiled unfiltered coffee, filtered coffee, and decaffeinated coffee. Results of epidemiological data suggests that its consumption may help prevent several chronic diseases, including cardiovascular diseases, type 2 diabetes mellitus,

Parkinson's disease and some liver diseases. Its intake also appears to attenuate the risk of some cancers. Coffee is rich in anti-oxidants and many other ingredients that contribute to its protective biological activity.

2. DISCUSSION

Coffee is rich in anti-oxidants, phyto-chemicals and many unidentified beneficial bioactive compounds (Gomez-Ruiz et al, 2007). These exert several protective effects, including improved endothelium function, (Bonita et al, 2007) improved glucose metabolism, increased reverse cholesterol transportation, improved platelet function and an attenuation of inflammation (Lopez-Garcia E et al, 2006). Coffee may also exert an influence on the protective endogenous pathways by modulation of gene-expression (Bohn et al, 2012).

2.1. Coffee and Cardiovascular Diseases

Coffee drinking has a prophylactic benefit on cardiovascular disease (Woodward et al, 1999). Its intake has been implicated in an acute increase in peripheral resistance and blood pressure (Klag et al, 2002). However, several large epidemiological and meta-analytic studies have failed to find an association between habitual coffee consumption and the development of sustained hypertension (Steffen et al, 2012; Zhang et al, 2011; Geleijnse, 2008). Coffee drinkers enjoy a lower risk of ischemic coronary heart disease (Cornelis et al, 2007) and ischemic strokes (Larsson et al, 2008; Larsson et al, 2011, Susanna et al, 2011). Its intake is also inversely associated with the risk of developing heart failure (Mostofsky et al, 2012).

2.2. Coffee and Diabetes Mellitus

Coffee drinking has a prophylactic effect on the development of diabetes mellitus (van Dam et al, 2005). The mechanism appears to be improved insulin sensitivity (Amlov et al, 2004; Natella et al, 2012). Several long term studies and meta-analytic reviews have linked drinking 3-4 cups of coffee per day with an approximately 25 % reduction in the risk of developing type 2 diabetes (Salarzar-Martinez et al, 2004; Muley et al, 2012; van Dam et al, 2002). This beneficial effect of coffee on dysglycemia is also seen with decaffeinated coffee intake (Huxley et al, 2009).

2.3. Coffee and Liver Disease

Coffee intake has also been shown to protect against the development of non alcoholic fatty liver (Birerdinc et al, 2012) and fibrosis (Molloy et al, 2012). Its intake is also associated with a decrease in the rate of progression of chronic hepatitis C (Purnak et al, 2009; Cardin et al, 2012), and a reduced risk of development of hepato-cellular carcinoma (Johnson et al, 2011; Inoue et al, 2005).

2.4. Other Benefits of Coffee

Coffee drinking has been shown to reduce cognitive decline in the elderly (Arab et al, 2011). It is associated with a reduced risk of developing Parkinson's disease (Liu et al, 2012). It lowers the rate of depression among women (Michael Lucas et al, 2011). This anti-depression effect is not seen with decaffeinated coffee. Coffee drinkers also suffer from less gall stones (Michael Leitzmann et al, 1999) and experience attenuated post work out muscle pain (Victor Maridakis et al, 2006). Several studies have also linked coffee drinking with a reduced incidence of cancer, especially basal cell carcinoma (AARC, 2011) and prostate cancer (Kathryn Wilson et al, 2011). A few studies have suggested that coffee drinking lowers the rates of colon, breast, and rectal cancers. Regular coffee intake may also reduce mortality from all causes (Sugiyama et al, 2010, Lopez-Garcia et al, 2008).

2.5. Possible detrimental effects of coffee

Coffee drinking is safe. Most studies have shown beneficial effects with 3-4 cups of coffee a day. Excessive intake can however lead to tachycardia, insomnia and gastric reflux. Caffeine is a pscho-stimulant, and coffee intake has also been associated with an increase in anxiety. Boiled coffee may increase serum cholesterol levels.

3. CONCLUSION

Coffee is rich in anti-oxidants. Filtered coffee removes the harmful diterpenes, cafestol and kahweol, found in boiled coffee. Epidemiological data, clinical studies and meta-analysis reviews provide compelling evidence that drinking about 4 cups of filtered coffee a day is beneficial to health. Coffee related reduction in the risk of developing cardiovascular disease and diabetes mellitus has been well established. The hepatic protective effects are also impressive. Besides warding off depression, it may also reduce the risk of developing certain cancers. Side effects are few and should not prevent the regular consumption of this beverage.

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Conflict of Interest:

The author declares that there are no conflicts of interests.

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Data and materials availability:

All data associated with this study are present in the paper.

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